THE JOURNAL OF GENERAL MICROBIOLOGY

EDITED FOR THE SOCIETY FOR GENERAL MICROBIOLOGY

Editors

E. A. DAWES
R. MARCHANT P. M. MEADOW C. RATLEDGE D. A. SMITH

Editorial Board

C. ANAGNOSTOPOULOS A. BAILEY B. W. BAINBRIDGE S. BASCOMB J. E. BERINGER E. A. BEVAN H. G. BOMAN I. J. BOUSFIELD W. J. BRAMMAR C. M. BROWN R. CAMPBELL N. G. CARR C. E. CATEN D. J. COVE P. DRAPER K. G. H. DYKE R. R. EADY A. A. EDDY K. ESSER

D. A. EVANS

C. A. FEWSON G. W. GOODAY M. GOODFELLOW T. R. G. GRAY K. GULL I. HANCOCK M. T. HEYDEMAN I. J. HIGGINS P. J. HIGHTON W. H. HOLMS R. M. JACKSON D. JONES R. F. O. KEMP A. KOTYK R. W. LACEY P. J. LARGE TH. LEISINGER P. H. MÄKELÄ R. J. MANCHEE B. E. MOSELEY

A. PASZEWSKI P. PIGGOT D. PITT S. POSTON R. C. RIGHELATO K. RING R. J. ROWBURY A. SALEM A. E. R. TAYLOR H. TRISTRAM H. VELDKAMP J. B. WARD A. C. WARDLAW J. G. H. WESSELS B. M. WILKINS S. T. WILLIAMS G. M. WILLIAMSON D. A. WOOD K. S. ZINNEMANN

VOLUME 99, 1977

CAMBRIDGE UNIVERSITY PRESS CAMBRIDGE · LONDON · NEW YORK

PUBLISHED BY THE CAMBRIDGE UNIVERSITY PRESS The Pitt Building, Trumpington Street, Cambridge CB2 1RP Bentley House, 200 Euston Road, London NW1 2DB 32 East 57th Street, New York, N.Y. 10022

© Society for General Microbiology 1977

Part 1 issued March 1977	
Biosynthesis of the Fungal Wall-Mechanisms and Implications. (The First Fleming Lecture.) By G. W. GOODAY	PAGE
Role of Ionic Strength in Colicin K Adsorption. By D. CAVARD	13
Water Status of Rhizobia in Relation to their Susceptibility to Desiccation and to their Protection by Montmorillonite. By H. V. A. Bushby and K. C. Marshall.	19
Chemical Fractionation of the Cell Walls of Mycelial and Yeast-like forms of <i>Mucor rouxii</i> : A Comparative Study of the Polysaccharide and Glycoprotein Components. By J. M. Dow and P. H. Rubery	29
Effect of Zinc on Tricarboxylic Acid Cycle Intermediates and Enzymes in Relation to Aflatoxin Biosynthesis. By S. K. Gupta, K. K. Maggon and T. A. Venkita-Subramanian	43
The Induction of Conidiation in Fusarium culmorum Grown in Continuous Culture. By R. LARMOUR and R. MARCHANT.	49
Carbon Dioxide Fixation and Conidiation in Fusarium culmorum Grown in Continuous Culture. By R. LARMOUR and R. MARCHANT	59
Chitin Synthase in Aspergillus nidulans: Properties and Proteolytic Activation. By N. S. Ryder and J. F. Peberdy	69
The Effect of Aeration and Metabolic Inhibitors on Resistance to Amphotericin in Starved Cultures of Candida albicans. By E. F. Gale, A. M. Johnson and D. Kerridge	77
Cyclic Accumulation of Zinc by Candida utilis during Growth in Batch Culture. By M. L. FAILLA and E. D. WEINBERG	85
Timing of Cold-sensitive Stages in the Cell Division Cycle of Escherichia coli K12. By H. B. M. WOLOSKER and D. F. DE ALMEIDA	99
The Rumen Flagellate Piromonas communis: Its Life-history and Invasion of Plant Material in the Rumen. By C. G. ORPIN	107
Microbial Metabolism of Alicyclic Hydrocarbons: Isolation and Properties of a Cyclohexane-degrading Bacterium. By L. A. STIRLING, R. J. WATKINSON and I. J. HIGGINS	119
Derivation of a Proteus mirabilis Converting Phage for Ampicillin Resistance. By	
J. N. COETZEE	127
Catabolism of L-Lysine by <i>Pseudomonas aeruginosa</i> . By J. C. Fothergill and J. R. Guest	139
Location of the Gene Specifying Hexose Phosphate Transport (uhp) on the Chromo-	157

	PAGE
Biosynthesis of Peptidoglycan in Wall plus Membrane Preparations from <i>Micrococcus luteus</i> : Direction of Chain Extension, Length of Chains and Effect of Penicillin on Cross-linking. By A. Weston, J. B. Ward and H. R. Perkins	171
The Nutritional Tests in Yeast Systematics. By J. A. BARNETT.	183
The Mitotic Chromosomes of the Cellular Slime Mould <i>Dictyostelium discoideum</i> ; A Karyotype Based on Giemsa Banding. By G. E. Robson and K. L. WILLIAMS.	191
Analysis of Karyotype and Ploidy of <i>Dictyostelium discoideum</i> Using Colchicine-induced Metaphase Arrest. By I. M. Zada-Hames	201
Sensitivity of Non-flagellate Salmonella Mutants to the Flagellotropic Bacteriophage χ. By S. ΥΑΜΑGUCHI, H. FUJITA, T. KUROIWA and T. IINO	209
SHORT COMMUNICATIONS	
The Occurrence of Chitin in the Cell Walls of the Rumen Organisms Neocallimastix frontalis, Piromonas communis and Sphaeromonas communis. By C. G. ORPIN.	215
Growth of Oncobasidium theobromae Talbot & Keane in Dual Culture with Callus Tissue of Theobroma cacao L. By C. Prior	219
Continuous-flow Cell Cycle Fractionation of Eukaryotic Micro-organisms. By D. LLOYD, L. JOHN, M. HAMILL, C. PHILLIPS, J. KADER and S. W. EDWARDS .	223
Energy Coupling in <i>Methylosinus trichosporium</i> . By G. M. TONGE, J. W. DROZD and I. J. HIGGINS	229
The Development of L-phase Colonies of Neisseria gonorrhoeae. By I. Geary and S. A. Waitkins.	233
The Malic Enzyme from Trypanosoma cruzi. By J. J. Cazzulo, S. M. Juan and E. L. Segura	237
Part 2 issued April 1977	
The Concentration of Glycine by Saccharomyces uvarum: Role of the Main Vacuole and Conditions Leading to the Explosive Absorption of the Amino Acid. By	
K. INDGE, A. SEASTON and A. A. EDDY	243
Evidence for a Cytosol Counterpart of the Major Plasma Membrane Protein in Acanthamoeba castellanii By J. E. Thompson, T. Maler, J. A. Chambers and J. A. Wilkins	257
Biochemical Genetics of the α-Keto Acid Dehydrogenase Complexes of Escherichia coli K12: Isolation and Biochemical Properties of Deletion Mutants. By D. LANGLEY and J. R. GUEST	
The Characteristics of Extracellular Protein Secretion by Staphylococcus aureus (Wood 46) and their Relationship to the Regulation of α-Toxin Formation. By	
B. ABBAS-ALI and G. COLEMAN	
Induction of Cell Division in a Temperature-sensitive Division Mutant of <i>Escherichia coli</i> by Inhibition of Protein Synthesis. By M. A. de Pedro and J. L. Cánovas.	283

Isolation of Mitochondria and Mitochondrial RNA from Crithidia fasciculata. By J. M. NICHOLS and G. A. M. CROSS.	PAGE 291
Characterization of Serratia marcescens, S. liquefaciens, S. plymuthica and S. marino-rubra by Electrophoresis of their Proteinases. By P. A. D. GRIMONT, F. GRIMONT, and the late H. L. C. DULONG DE ROSNAY	
Polyploidy and Induced Gametangial Formation in British Isolates of <i>Phytophthora infestans</i> . By E. Sansome	301
Accumulation of Cadmium and Cobalt by Saccharomyces cerevisiae. By P. R. NORRIS and D. P. Kelly	317
Transfer and Expression of Pseudomonas Plasmid RPI in Caulobacter. By J. L. ALEXANDER and J. D. JOLLICK.	325
The Surface Properties of Neisseria gonorrhoeae: Isolation of the Major Components of the Outer Membrane. By J. E. HECKELS	333
Effects of Biotin Deficiency on Growth, Morphology and Sporulation in Bacillus megaterium NCIB7581. By R. M. AL-SSUM and P. J. WHITE	343
Preliminary Characterization of Cell-free K99 Antigen Isolated from Escherichia coli B41. By J. A. Morris, A. E. Stevens and W. J. Sojka	353
Restriction-deficient Mutants of Staphylococcus aureus. By E. E. STOBBERINGH and K. C. WINKLER	359
The Influence of Growth Substrate and Capacity for Oxidative Phosphorylation on Respiratory Oscillations in Synchronous Cultures of <i>Escherichia coli</i> K12. By R. K. Poole	369
Effects of Ca ²⁺ and K ⁺ on the Physical State of Membrane Lipids in <i>Thermoplasma acidophila</i> . By H. Weller and A. Haug	379
Respiratory Properties of Synchronous Cultures of <i>Alcaligenes eutrophus</i> H16 Prepared by a Continuous-flow Size Selection Method. By C. EDWARDS and C. W. JONES	383
Host Modification and Restriction with a Mycobacteriophage Isolated from a Pseudolysogenic <i>Mycobacterium chelonei</i> . By W. D. Jones, Jr, and J. Greenberg	389
Isolation and Characterization of a Membrane-associated Thiosulphate-oxidizing System of <i>Thiobacillus novellus</i> . By J. K. Oh and I. Suzuki	397
Resolution of a Membrane-associated Thiosulphate-oxidizing Complex of <i>Thiobacillus novellus</i> . By J. K. Oн and I. Suzuki	413
Serological Grouping of Virulent and Avirulent Strains of the Lobster Pathogen Aerococcus viridans. By J. F. Steenbergen, H. S. Kimball, D. A. Low,	125
H. C. SCHAPIRO and L. N. PHELPS	425

	PAGE
SHORT COMMUNICATIONS	
Morphological Modifications of Bacteria Induced by Spatial Constraints. By J. REYROLLE and F. LETELLIER	431
Cytochemical Localization of Mercury in <i>Cryptococcus albidus</i> Grown in the Presence of Mercuric Chloride. By T. A. Brown and D. G. Smith	435
Activation of NAD-dependent Lactate Dehydrogenase in Butyrivibrio fibrisolvens by Fructose 1,6-Diphosphate. By N. O. VAN GYLSWYK	441
Properties of pPE1572(Hys-Raf), a Plasmid Governing Hydrogen Sulphide Production and Raffinose Fermentation in Escherichia coli. By M. MAGALHÃES and	115
A. VÉRAS	445
G PIH VERER	440